

10/773,656

REMARKS

A check in the amount of \$50 is enclosed to cover the additional claim in excess of twenty (20) claims.

The present Response is submitted in reply to the Official Action mailed May 24, 2005, and the Applicant respectfully requests entry of the present Response and the amendments presented herein before reconsideration of this application.

The Examiner objects to the drawings for certain informalities therein and, in particular, an error in Figs. 4 and 5 wherein element 14 is identified by the reference numeral 10 and by the lack in the drawings of any element or elements corresponding to the "common valve" recited in claim 27 and the "valve unit" recited in claim 28.

In response, Figs. 4 and 5 of the drawings are suitable corrected in the attached Submission by changing reference numeral 10 to reference numeral 14 and claims 27 and 28 are amended by replacing the recitations of a "common valve" and a "valve unit" with recitations referring to the "common oil supply" 9, which is shown in the drawings. It should be noted that these amendments to Figs. 3, 4 and 5 and to claims 27 and 28 thereby address and overcome the Examiner's grounds for objection to the drawings and do not add any new subject matter to the present invention. The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw all objections to the drawings.

New formal drawings, incorporating the requested amendments, are also enclosed. If any further amendment to the drawings of this application is believed necessary, the Examiner is invited to contact the undersigned representative of the Applicant to discuss the same.

Next considering the claims, the Examiner also objects to claims 16 and 28 for certain informalities contained therein and the Applicant accordingly amends claims 16 and 28 herein above to meet and overcome the stated informalities. The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw all objections to claims 16 and 28.

The Examiner also rejects claims 25 and 27-30, under 35 U.S.C. § 112, as indefinite for the grounds stated in the Official Action, but states in the Official Action that claims 16-21, 23 and 24 are allowed and that claims 25, 27, 28 and 29 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. § 112.

The Applicant thanks the Examiner for finding claims 16-21, 23 and 24 to be allowable and hereby amends claims 25, 27, 28 and 29 to meet and overcome the grounds for rejection under 35 U.S.C. § 112, without adding any new matter. The Applicant therefore respectfully requests that the Examiner reconsider and withdraw all rejections of claims 25, 27, 28 and 29, under 35 U.S.C. § 112.

Lastly, the Examiner rejects claims 22, 28 and 30 under 35 U.S.C. § 112, first paragraph, on the grounds of an inadequate written description rejection and, in particular, on the grounds that the description does not show how, in the embodiment shown in Fig. 3, the primary clutch could be engaged when, under the stated circumstance, the primary clutch must be engaged to generate sufficient converter internal pressure to engage the primary clutch. This grounds for rejection is acknowledged and respectfully traversed in view of the following remarks.

In response, the Applicant refers the Examiner to Fig. 1 and the corresponding description in paragraphs 029 through 034 of the specification and to Fig. 3 and in paragraphs 038 through 040 of the specification.

In Fig. 1 and paragraphs 031 to 034 the specification states that:

[029] Fig. 1 shows a hydrodynamic converter 1 comprising a pump 2, a turbine 3 connected to the transmission input shaft 4 and a stator 5. A drive 6 of the engine and a converter shell 7 are also shown. The converter comprises a primary clutch PK, which connects the drive 6 detachably to the pump 2, and a converter bridging clutch WK, which connects the drive 6 detachably to the transmission or the transmission input shaft 4.

[030] According to the invention, the primary clutch PK and the converter bridging clutch WK are arranged approximately one above the other and are actuated by a common piston 8 via a common oil supply 9. The same indexes are also used in Figs. 2 through 5.

- [031] In this case, the pump 2 (pump impeller) is connected to or made as one piece with the outer disk carrier of the primary clutch. The inner disk carrier of the primary clutch PK is connected to or made as one piece with a web 10 connected to the drive 6. The turbine 3 is connected to the inner disk carrier of the converter bridging clutch WK; in addition, the drive 6 is connected to the outer disk carrier of the converter bridging clutch via the same web 10.
- [032] The converter bridging clutch WK is made as a "positive clutch", i.e., it is closed when acted on by pressure. In contrast, for the example embodiment shown in Fig. 1, the primary clutch is made as a "negative clutch", i.e., the primary clutch is closed by the spring force of a spring 11 and opened when acted on by pressure.
- [033] The two clutches operate as follows. When a piston space 12 is acted on by a pressure higher than the converter pressure, the piston 8 presses against the disk pack of the converter bridging clutch and the converter bridging clutch closes.
- [034] When the pressure in the piston space 12 falls below the converter pressure, the piston 8 is pushed by the converter pressure in the direction of the piston space 12 so that the disk pack of the primary clutch, which was previously pressed together by the spring 11, is unloaded allowing the primary clutch to open.

In Fig. 3 and paragraphs 038 to 040 the specification states that:

- [038] The example embodiment (shown in Fig. 3) differs from that of Fig. 2 in that the primary clutch PK too is made as a "positive clutch". In this case, the pump 2 is connected to the outer disk carrier of the primary clutch. The inner disk carrier of the primary clutch PK is connected to the drive 6. The turbine 3 is connected to the outer disk carrier of the converter bridging clutch WK and the drive 6 is connected to the inner disk carrier of the converter bridging clutch via a bolted-on disk 13.
- [039] With the "positive" primary clutch PK, when the pressure in the piston space 12 falls the piston 8 presses against the disk pack, thereby closing the clutch.
- [040] Accordingly, on changing from a closed primary clutch to a closed converter bridging clutch, the primary clutch opens first and only then does the converter bridging clutch open.

First considering Fig. 1 and paragraphs 029 through 034, the Fig. 1 shows and the specification states that turbine 3 is connected to input shaft 4 and is connected to the inner disk carrier of bridging clutch WK, by the element shown as connected between turbine 3 and the inner disk carrier of bridging clutch WK, and that the outer disk carrier of bridging clutch WK is connected to drive 6. Turbine 3 is thereby permanently connected to input shaft 4, and thus is always driven, and is connectable to drive 6 by bridging clutch WK, so that input shaft 4 is thereby directly connectable to drive 6.

Pump 2, in turn, is connected to the outer disk carrier of primary clutch PK while the inner disk carrier of primary clutch PK is connected to drive 6, so that pump 2 is thereby connectable to drive 6 by primary clutch PK.

Therefore, turbine 3 is permanently connected to input shaft 4 and thus is permanently driven by the hydrodynamic converter input while turbine 3/input shaft 4 and pump 2 are each connectable to drive 6 by operation of primary clutch PK and bridging clutch WK. Also, only one of turbine 3/input shaft 4 or pump 2 will be connected to drive 6 at any given time, with the selection being made by the operation of common piston 8.

Next, considering the embodiment of the invention as illustrated in Fig. 3 and in paragraphs 031 through 034, and comparing that embodiment with the embodiment illustrated in Fig. 1, it is shown that pump 2 is again connected to the outer disk carrier of primary clutch PK while the inner disk carrier is again connected to drive 6, so that pump 2 is again thereby connectable to drive 6 by the operation of common piston 8. In this regard, it will be readily seen that the primary difference from the implementation of Fig. 1 with regard to pump 2 is that the portion of common piston 8 that acts on primary clutch PK is "bent around" so that pressure actuation of common piston 8, that is, when the pressure in the converter is greater than the pressure in piston space 12, will actuate primary clutch PK to the closed or engaged state.

Next, referring to turbine 3, it is shown in Fig. 3 that the turbine 3 is again connected directly to input shaft 4 and thereby again is permanently driven by input shaft 4, which is the input to the hydrodynamic converter, so that in this regard the implementation of Fig. 3 is the same as the implementation of Fig. 1.

Comparison of Figs. 1 and 3 and of the relevant parts of the specification show, however, that in the embodiment shown in Fig. 3, the turbine 3 is connected to the outer disk carrier of bridging clutch WK, by the short connecting element shown between turbine 3 and the outer disk carrier, and that the inner disk carrier of bridging clutch WK is connected to

drive 6 by the bolted-on disk 13 rather than by a direct connection. As a result, the turbine 3 and thus input shaft 4 are again directly connectable to drive 6 by operation of common piston 8.

It should be recognized, however, that the configuration of the turbine 3 and the drive 6 with respect to the inner and outer disk carriers of bridging clutch WK that is shown in Fig. 3 is the reverse of that in the embodiment of Fig. 1, wherein turbine 3 is connected to the inner disk carrier of bridging clutch WK and the outer disk carrier of bridging clutch WK is connected to the drive 6. Consideration of Figs. 1 and 3 will clearly show, however, that the reversal of the connections of the turbine 3 and the drive 6 to the inner and outer disk carriers of bridging clutch WK, and the connection of the inner disk carrier to the drive 6 by the bolted-on disk 13, effectively reverses the direction of movement of the common piston 8 in opening and closing bridging clutch WK and in opening and closing primary clutch PK with respect to the configuration illustrated in Fig. 1. The reversal, however, allows primary clutch PK to operate as a "positive" clutch, that is, a clutch that moves to the closed position when pressure is increased and moves to the open position when the pressure is decreased.

Lastly in this regard, it should be noted that it is described in paragraph 040 that the opening and closing operation of the primary and bridging clutches is such that there will not be any transitory state wherein neither the primary nor the bridging clutch is connected to the drive.

As a consequence, therefore, and in response to the Examiner's rejection of claims 22, 28 and 30 because of a non-enabling disclosure, it is clear that there is no state during operation of the converter of the present invention, as illustrated in Fig. 3 and as recited in claims 22, 28 and 30, when the converter turbine is not driven to provide the necessary pressure to operate the converter clutches. In this regard, must be noted that claim 22 is dependent from claim 16 and claim 30 is dependent from claim 28 and that both claim 16 and claim 18 recite that the turbine 3 is directly connected to input shaft 4, thereby insuring that the

converter turbine is always driven to provide the pressure necessary to actuate the primary and bridging clutches.

It must also be noted that the Applicant is amending claims 22, 28 and 30 to more explicitly and clearly recite these essential aspects of the present invention, but without adding any new matter.

The Applicant, therefore, respectfully requests that the Examiner reconsider and withdraw the rejections of claims 22, 28 and 30, under 35 U.S.C. § 112, first paragraph, on the grounds of an inadequate written description rejection, and the allow claims 22, 28 and 30 as amended herein above.

Lastly with regard to the claims, it will be noted that the Applicant is submitting new claims 31 and 36, which are directed to the same invention as claims 16 through 30. The Applicant believes the scope of the present invention to be further deserving of the protection afforded by additional claims 31 and 32, which do not added any new subject matter. The Applicant, therefore, respectfully requests the entry and allowance of new claims 31 and 36.

If any further amendment to this application is believed necessary to advance prosecution and place this case in allowable form, the Examiner is courteously solicited to contact the undersigned representative of the Applicant to discuss the same.

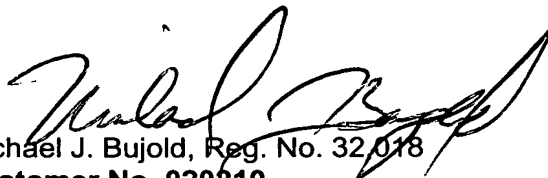
In view of the foregoing, it is respectfully submitted that the raised rejection(s) should be withdrawn and this application is now placed in a condition for allowance. Action to that end, in the form of an early Notice of Allowance, is courteously solicited by the Applicant at this time.

The Applicant respectfully requests that any outstanding objection(s) or requirement(s), as to the form of this application, be held in abeyance until allowable subject matter is indicated for this case.

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In the event that there are any fee deficiencies or additional fees are payable, please charge the same or credit any overpayment to our Deposit Account (Account No. 04-0213).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael Bujold", written over the printed name and registration number.

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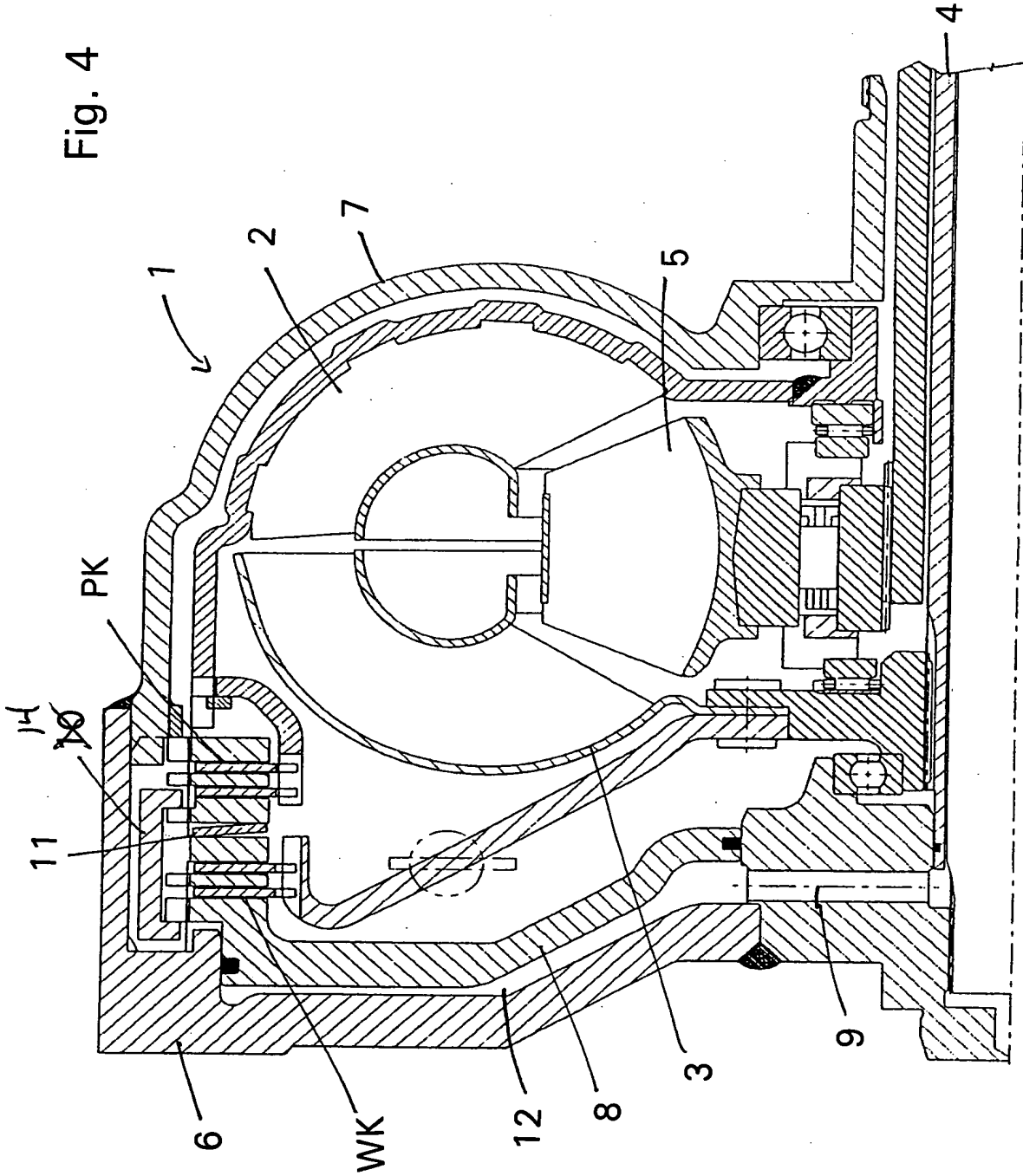
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Fig. 4



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Fig. 5

